

UNIVERSITI TEKNOLOGI MARA

**A STUDY ON BIOACTIVE
CONSTITUENTS OF *MYRMECODIA
PLATYTYREA* SUBSP. *ANTOINII*
(BECC.) HUXLEY & JEBB**

NUR FADHILAH BINTI MOHAMAD HARIS

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of the requirement for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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Name of Student : Nur Fadhilah Binti Mohamad Haris

Student I.D. No. : 2009340843

Programme : Master of Science (PH780)

Faculty : Pharmacy

Thesis Title : A Study on Bioactive Constituents of *Myrmecodia Platytyrea* Subsp. *Antoinii* (Becc.) Huxley & Jebb.

Signature of Student : 

Date : February 2014

ABSTRACT

The *Myrmecodia* genus (ant plant) is traditionally used to prevent and cure the cancer, heart problems and other serious diseases. Although there are many medicinal effects claimed, unfortunately there were only a few reports on the chemical isolation of the constituents on *Myrmecodia platytyrea* subsp. *antoinii* (Becc.) Huxley & Jebb. All the extracts from this plant were tested using 2, 2-diphenyl-1-picrylhydrazyl (DPPH) method. The ethyl acetate (EA) extract was the most potent with the EC_{50} value, $32.91 \pm 2.23 \mu\text{g/mL}$. The potent extract in DPPH test was further fractionated using MPLC, which gave a total of 8 fractions (F1 – F8). All the fractions were tested using DPPH method and the F5 was the most potent with the EC_{50} value, $21.57 \pm 1.40 \mu\text{g/mL}$. The ferrous ion chelating (FIC) activity also was tested on EA extract and the result was negative. Surprisingly, the FIC was found positive when tested in the fractions of EA such F1 and F2 with the IC_{50} values $293.30 \pm 19.86 \mu\text{g/mL}$ and $152.74 \pm 9.95 \mu\text{g/mL}$ respectively. The rest of fractions were not active in the FIC activity. Then, the recrystallization technique is applied for isolation of the stigmasterol (**5**) and β -sitosterol (**6**), from the hexane extract. These two compounds also present in the fractions that were potent in the FIC assay. The biphenyl, compound (**13**), also was successfully isolated from this hexane extract using preparative thin layer chromatography (TLC). It is possesses cytotoxic activity that can relate with this plant to treat cancer. As for conclusions, this study showed that the *M. platytyrea* sp. is a source of antioxidant, anticancer and acts as a good chelator agent. Furthermore, the compound (**5**), (**6**) and (**13**) were first isolated from this genus.

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